

Goldin visits Stennis to share his vision for the space agency

NASA Administrator Dan Goldin visited Stennis Space Center Tuesday, Oct. 13 to share his vision with center employees on future activities of the Agency.

During an all-hands meeting in the Visitors Center auditorium, Goldin took time to thank employees for their hard work and dedication and emphasized the growing responsibility the South Mississippi facility is playing in America's space program.

Goldin told the group, "NASA has had a great 40 years, but we're just getting started. We at NASA believe that there will forever be something to invent, something to discover and somewhere to go."

Concerning the future of the Space Shuttle program, NASA's administrator called it the workhorse of the space program, one which NASA and contractor personnel as well as the American people should be proud because of the scientific discoveries made during its missions. "The shuttle will carry us while we work on the development of advanced launch systems, and no one knows it better than you folks at NASA Stennis because you have tested them all," Goldin said.

Goldin empowered each employee to put safety and quality first. "Remember," said Goldin, "safety is number one with NASA."

During his address, Administrator Goldin also expressed his satisfaction that more and more rocket propulsion and remote sensing companies were choosing to utilize the state-of-the-art facilities and expertise found at Stennis Space Center. "NASA Stennis is leading the agency in generating commercial opportunities," remarked Goldin.



While visiting Stennis Space Center, NASA Administrator Daniel Goldin received an overview of Stennis Space Center projects, including tours and briefings on lead center activities in propulsion test and commercial remote sensing. Pictured from left are NASA's Mike Mims, A-1 test stand director; NASA's Rick Gilbrech, chief of the engineering division, propulsion test directorate at Stennis; Goldin; Dave Geiger, Stennis site director and propulsion development deputy program manager for Rocketdyne Propulsion & Power; and Stennis Space Center Deputy Director Mark Craig.

Tests begin on X-33 powerpack at Stennis



Steve Nunez, X-33 project manager at SSC, (foreground) and test personnel closely monitor first powerpack test at Stennis.

A critical milestone has been achieved with the first successful powerpack test of the X-33's Linear Aerospike Engine at NASA's Stennis Space Center.

Engineers and technicians conducted a successful 2.8-second powerpack test at 12:13 a.m. Friday, Oct. 2, to verify propellant ducting flow predictions and discharge valve and gas generator fuel valve timing for ignition.

This marks the beginning of a program to test engines leading to flights of the X-33 beginning next year. The X-33 technology demonstrator is being developed by an industry and government team led by Lockheed Martin Skunk Works in Palmdale, Calif., under a cooperative agreement with

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LAGNIAPPE Commentary

Sweeping Up After Georges...

Raking up oak limbs is not exactly rocket science, nor is the cleaning up after a storm near as much fun as testing engines and studying astronomical maps.

A large number of Stennis Space Center employees had to do a lot of raking, piling up leaves and hauling off trash during the days after Hurricane Georges passed our way. But most, like myself, could be thankful, with every wheelbarrow load of limbs and leaves, that we escaped what could have been a major catastrophe.

Over the past week, I couldn't help but remember some of our past hurricanes during the center's 37-year history down here in coastal Mississippi.

The first hurricane I remember was Betsy in 1965. The eye of that storm moved in near New Orleans, and 75 people were killed when a levee broke. Betsy did, however, play havoc with the Gulf Coast. A number of our employees lost their homes, and everyone was left with a healthy respect for the damage hurricanes can do.

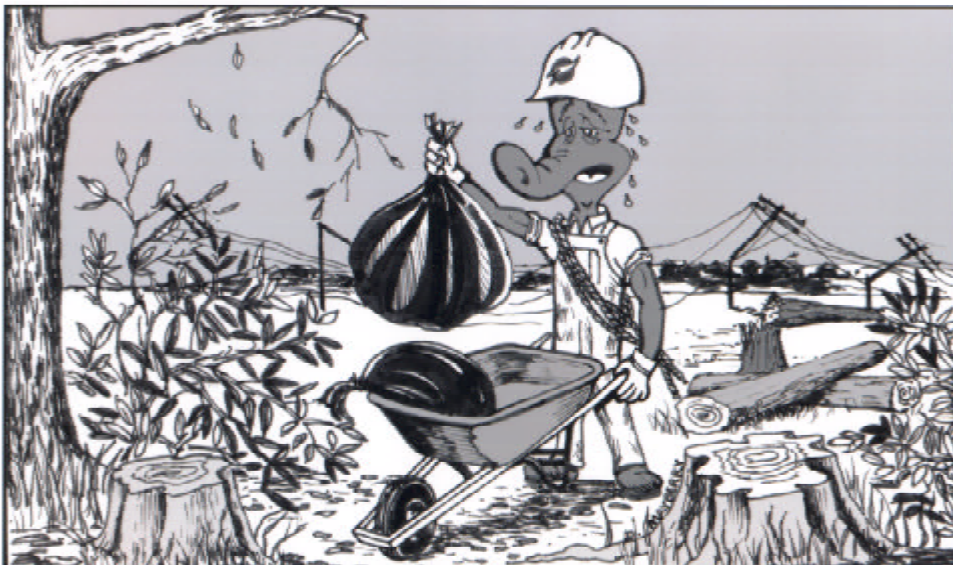
As you have surely heard from the old timers, the Mother of all Hurricanes, Camille, totally devastated the Gulf Coast in 1969 killing 143 people and leaving a trail of destruction that few will ever forget. Stennis Space Center played a major role in the recovery effort. Stories are still told of our people's heroics and their unselfish work in the clean up effort as they pitched in to help their neighbors. A bonding took place between our center and the surrounding communities back then that holds fast to this day.

Aside from Betsy and Camille, I remember other hurricanes that came our way. Although Fredrick in 1979 struck on the east side of the Gulf Coast at Dauphin Island, SSC had to go through all of the hassle of tying things down and getting ready for the big blow.

In 1985, many of us who lived near Gulfport went home to find major destruction and were without power and phone for days following Hurricane Elena. There was so much devastation where I lived that it took the power company 11 days, to get us hooked up again. What a mess! Trees were blown down on our house and we had to reroof. On the positive side, we had enough of good oak firewood to last two or three winters.

With Hurricane Georges, we now have a new generation of folks, honed with the experience and the humility of having looked one of Mother Nature's most powerful forces in the eye and breathing a sigh of relief when we were spared.

M.R.H.



NASA NEWSCLIPS

NASA wages war on cancer—In observance of October as Breast Cancer Awareness Month, NASA will release information on new ways aerospace research and technology are helping in the understanding, detection and treatment of all types of cancer.

A NASA fact sheet available on the Internet highlights diagnostic technology currently available and features NASA research and technology that may improve cancer diagnosis, surgical procedures and drug therapies in the future. The website address is: <http://www.nasa.gov/women/welcome.html> Five critical cancer experiments will be conducted on the upcoming Space Shuttle mission, STS-95, currently targeted for launch on Oct. 29. Cancer is the second leading cause of death for Americans. According to the National Cancer Society, 564,800 Americans are expected to die of the disease this year—more than 1,500 people per day. Men have a one in two lifetime risk of developing cancer and for women the risk is one in three.

Software scalpel helps doctors practice operations—A “software scalpel,” combined with clear, accurate, three-dimensional (3-D) images of the human head developed using computer technology, is helping doctors practice reconstructive surgery and visualize the outcome more accurately.

Using the new approach, a physician wearing 3-D glasses can see an image of a patient's head from all angles on a computer monitor, or on the surface of a large “immersive virtual reality work bench.”

Virtual reality is a computer-created environment that simulates real-life situations.

“To predict what the result will be in a real operation, the surgeon uses a computer mouse to mark the incision location and to ask the computer to ‘cut’ bone,” said Muriel Ross of NASA's Ames Research Center in Moffett Field, Calif. Ross is director of the Ames Center for Bioinformatics, which uses computer technology to improve medical practices. “The doctor can then remove the simulated piece of bone or can place it at a new angle or in a new position.”

“Eventually, we want to provide a virtual tool for surgeons to practice many sorts of surgery,” said Aaron Lee, a student from Princeton University.

Stennis shelters community from Hurricane Georges

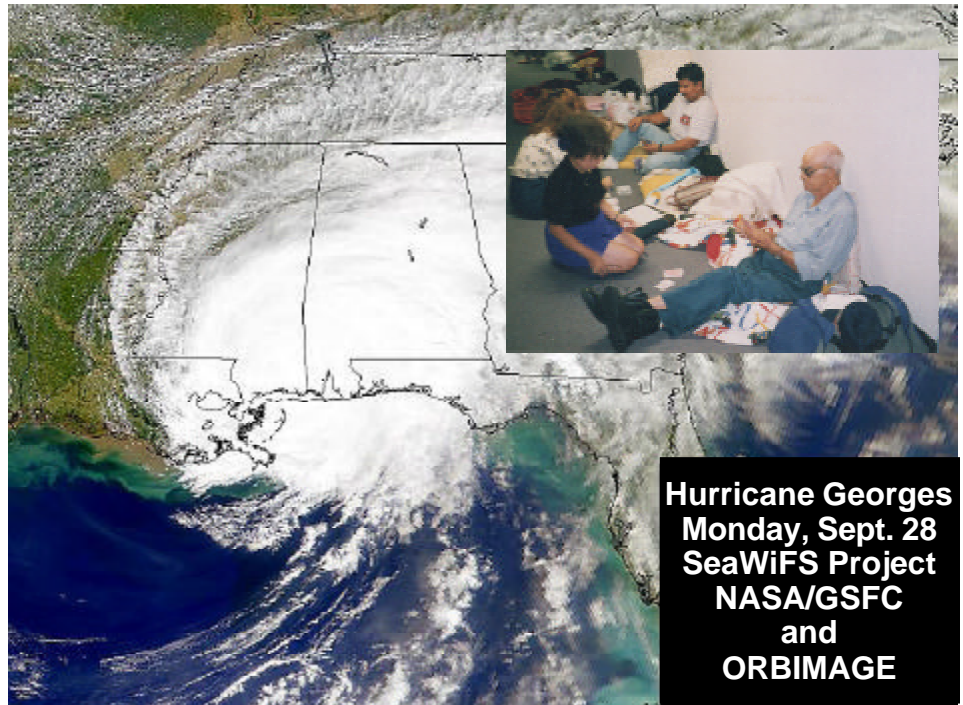
The Mississippi Gulf Coast was hit for the first time by a hurricane in 12 years. After developing off the coast of Africa, traveling across the Atlantic Ocean and crossing over Cuba and the Florida Keys, Hurricane Georges crossed the Gulf of Mexico and slammed into Mississippi near the city of Biloxi on September 28.

Stennis Space Center was forced to shut down operations for three days while the hurricane passed just to the east of the space center. The Emergency Operations Center opened on a limited basis on Friday, Sept. 25 and began 24-hour operations on Saturday, Sept. 26 at 6 a.m. The Stennis emergency team, including ride-out crews, completed the vast majority of hurricane preparations during the next 24 hours.

Shelters at Stennis were opened on a priority basis for ride-out crews, employees and their families and the general public.

The shelters were made available to the general public at the request of the Hancock County Civil Defense Director, including the establishment of a "special needs" shelter, complete with backup power, to support indigent patients.

"Hurricane Georges was the most serious test to our Hurricane Implementation Plan since Hurricane Camille in 1969," Clyde Dease, Emergency Preparedness Officer for Stennis Space Center said. "It was the first time in our history that we developed a 'special needs' shelter, and we had the most evacuees in our shelters since 1969." The Stennis



Local evacuees sought shelter at Stennis Space Center from the deadly Hurricane Georges as it made landfall on the Mississippi Gulf Coast.

Emergency Operations Center itself logged more than 7,000 phone calls during its operation.

Overall, 20 shelters were opened at Stennis, with approximately 1,500 people taking refuge from the storm. About 90 percent of those in the shelters were local residents from Picayune, Pearlington, Long Beach, Bay St. Louis, Miss., and Slidell and New Orleans, La.

Georges was a category 2 hurricane with maximum sustained winds of 90 miles per

hour when it made landfall, with maximum winds at Stennis reaching 74 miles per hour.

EOC officials at Stennis reported minor damage to center property.

"Considering that the hurricane maintained a consistent path toward New Orleans as projected by most meteorologists, we were extremely fortunate to miss a direct hit and escape severe damage," Dease said.

The light amount of damage is credited to having a good hurricane plan that everyone followed.

Director thanks employees for Georges' effort

I want to take this opportunity to thank all our Stennis Space Center employees, starting with the Emergency Council members, for their efforts in securing our facility and assisting our friends and neighbors in the surrounding communities during Hurricane Georges.

This hurricane could have been much worse had it followed its original track, but I feel confident that our center was well prepared to meet any challenge.

During the emergency, I was thoroughly impressed with what I saw and how the employees were handling things. The hallways were filled with people trying to escape the hurricane. I went to the cafeteria

and saw the cafeteria workers serving hot food and an emergency clinic operating in the same area.

There were some problems brought on by the numbers of people here, but they were handled in the most expert manner imaginable. The coordination effort was similar to the greatest rocket test that we had ever accomplished. I was very, very proud to be a part of a group of people who could step up and do that.

I want to also thank the people of the other agencies who opened their buildings, the shelter managers as well as all NASA and contractor personnel from the housekeepers to the ride-out crews caring for the expensive hardware at the test stands and throughout the

site. I am extremely proud of the way that you performed and conducted yourselves.

I want to let all the people of SSC know that many positive comments have been received from the surrounding communities and from the local government offices concerning the care that the residents were given and the level of emergency preparedness that we have in place.

2,000th Space Shuttle Main Engine test achieved

The rocket engine test team at Stennis Space Center conducted the 2,000th test of the Space Shuttle Main Engine at the A-2 test stand on Oct. 16. Flight engine #2049 was tested for 520 seconds with no problems occurring.

"This major milestone is a testimony to the dedication and teamwork of the Marshall Space Flight Center along with the Stennis Space Center NASA-contractor team in delivering safe and dependable main engines for this nation's Space Shuttle program," said NASA's Pat Mooney of the Space Shuttle Main Engine Project Office at Stennis.

During a shuttle launch, each of the three main engines that power the shuttle operates for 520 seconds—from liftoff to orbit. With the completion of the 2000th test, single engines of the three-engine shuttle propulsion system have been tested for 656,562 seconds.

The shuttle main engine, the only reusable liquid-fueled rocket engine in the world, was developed and manufactured by the Rocketdyne Propulsion & Power segment of Boeing in Canoga Park, Calif. The main engine has been tested at Stennis since 1975.

In the coming months, engineers at



The rocket engine test team at the John C. Stennis Space Center in south Mississippi conducted the 2,000th test of the Space Shuttle Main Engine at the A-2 test stand on Oct. 16. Flight engine #2049 was tested for 520 seconds with no problems occurring. All systems performed as expected. Stennis has been testing shuttle main engines since 1975.

Stennis will also be testing the XRS-2200 linear aerospike engine for the X-33 reusable launch vehicle, also developed by Boeing at Rocketdyne.

"The experience we've acquired working as a team at Stennis through the Space Shuttle Main Engine program will

add tremendous value as we begin preparations for testing these next-generation reusable rocket engines," said Dave Geiger, Stennis site director and propulsion development deputy program manager for Rocketdyne Propulsion & Power.

NASA and the Navy partner to conduct research in South China Sea

One of the main things that makes Stennis Space Center a unique federal city is the open cooperation between the diverse group of onsite agencies. A perfect example of the cooperation is the annual month-long sea-truthing cruise that NASA's Dr. Richard Miller, chief of the Earth System Science Office at Stennis, takes in conjunction with the Naval Oceanographic Office (NAVOCEANO) located at Stennis.

According to Miller the crew sailed from Singapore to Hong Kong and primarily sampled in the Gulf of Thailand.

The purpose of the expedition was to collect ocean bio-optics information in the region of the South China Sea to verify the accuracy of several ocean-color satellites, including the Sea-viewing Wide Field-of-view Sensor (SeaWiFS).

Sea-truthing involves going out to target areas of the ocean and taking precise measurements of light and concentrations of phytoplankton, sediment and other water constituents.

In many areas, ocean color is mostly determined by the concentration of microscopic marine plants called phytoplankton.

NASA's Dr. Richard Miller, in the background, along with a crewman of the USNS Bowditch, measures surface reflectance of the South China Sea with a spectroradiometer. Miller was on an annual cruise with NAVOCEANO to verify the accuracy of ocean-color satellites.



The accurate measurement of phytoplankton concentration in the Earth's oceans is important to climate change research and to local economic concerns such as commercial fishing.

On this trip, Miller had one piece of equipment that he didn't have on previous trips, a spectroradiometer. It was used to

collect information about the surface reflectance and color of the sea to be used in conjunction with the measurements of the ocean color collected from beneath the surface.

Results of the NASA/Navy collaboration on this cruise showed that there were no dramatic changes in ocean color compared to last year's findings, according to Miller.



Pictured above, children of Stennis employees enjoyed the many activities that were available at the third annual SSC Fall Family Picnic held Saturday, Oct. 17, at McLeod Park. The day was filled with fun and excitement with games for the children, live music, an astronaut signing autographs, a dunking booth, bingo and lots of food for everyone. Pictured below, astronaut David Brown signs autographs for Stennis employees and their children.



Glenn

Glenn to take first shuttle flight on STS-95

U.S. Sen. John Glenn, 77, will take his second trip into space and his first aboard the shuttle to help scientists study the effects of aging.

Glenn, who thirty-six years ago made history when he strapped himself into a nine-by-seven-foot capsule atop an experimental rocket and became the first American to orbit the Earth.

Since aging and space flight share a number of similar physiological responses, the study of space flight may provide a model system to help scientists interested in understanding aging. Some of these similarities include bone and muscle loss, balance disorders and sleep disturbances.

The primary objective of this flight is to conduct a variety of science experiments being carried in the pressurized Spacehab module, the deployment and retrieval of the Spartan free-flyer payload, and operations with the Hubble Space Telescope Orbiting Systems Test and the International Extreme Ultraviolet Hitchhiker payloads being carried in the payload bay.

The STS-95 crew commander will be Curt Brown, and Steve Lindsey is the pilot. Three mission specialists are assigned to this flight—Scott Parazynski, Steve Robinson and Pedro Duque from the European Space Agency. The two payload specialists are Chiaki Mukai, from the Japanese Space Agency and Glenn.

The Space Shuttle Discovery is scheduled for liftoff on Oct. 29.

Magee is driven to improve the environmental quality of our lives

Ron Magee of Bay St. Louis lives each day with a gentle but driving purpose. His drive never really ends; it just changes gears.

As NASA's environmental officer at Stennis Space Center, Magee's job is to ensure that the center meets all federal and state environmental regulations. Since taking the top environmental position in 1981, Magee has emphasized the need for early environmental planning in NASA's projects at Stennis, such as rocket engine test programs. Senior NASA officials say that Magee's foresight will save the government time and money by avoiding the need for future redesign work to meet requirements.

Magee's recent emphasis at Stennis has involved working with the public and with officials of the Environmental Protection Agency, the Mississippi Department of Environmental Quality and the Mississippi Department of Health to determine the best ways to clean up hazardous waste sites that were created at Stennis before his time. Magee's efforts have included sponsoring several meetings at Stennis and in the community to share information with Stennis employees and with the public about the ongoing cleanup plans.

Magee approaches his work as he does all activities in his life with carefulness and resolve. It's not enough for Stennis to meet minimum environmental requirements. Guided by quiet wisdom and an unwavering conscience, he seeks solutions that will be the best for the center's nearly 4,000 employees and for residents in surrounding communities.

"... I do consider myself fortunate to be able to find a highly technical and challenging job right here in south Mississippi."

Ron Magee



His care for the environment is not limited to flora and fauna, however. His "environment" includes his coworkers, his church and his community, all which simply complement the first and foremost delight of his life—his family.

Magee's life is centered around his wife, Elisabeth, and four children: Jennifer, 13; Chris, 11; Kaileigh, 3; and Megan, 2. His wife is a teacher of the multi-handicapped at North Bay Elementary School. Family activities alone keep him busy.

If that isn't enough to put on one man's plate, Magee also graduated from the first Leadership Hancock County executive leadership program and is currently participating in the PRO-MISS statewide leadership program.

Magee also serves as the chair of the Hancock County Chamber of Commerce's Environmental Committee, which is spear-

SSC Employee Profile



heading a grass roots effort to provide sanitary sewage in the lower half of the county.

His career began with Computer Sciences Corporation (CSC) while it had the contract at Stennis Space Center. His work with CSC led him to move out west to Lancaster, Calif., to work at Edwards Air Force Base for two years as the manager of the Environmental Sciences Section. During his final year with CSC, he served as the company's first Corporate Environmental Director. Magee worked nearly 12 years with CSC before joining NASA at Stennis.

"I have had only two employers, CSC and NASA" he said. "Even though I moved to California for a brief time in my career, I do consider myself fortunate to be able to find a highly technical and challenging job right here in South Mississippi."

"In fact, this is the very best position I've ever had," he said. "I get to work with people in every environmental discipline from around the country without having to change employers," he said. "The challenges of rocket engine testing and the environmental permitting processes associated with it, make this a unique position that few in this county get the chance to have."

HEDS officials met at Stennis to discuss education opportunities

Education officials from NASA Headquarters and four NASA field centers met at Stennis Space Center in late September to conduct two days of strategic planning for NASA's Human Exploration and Development of Space (HEDS) Enterprise. The centers represented were Johnson Space Center, Kennedy Space Center, Marshall Space Flight Center and Stennis Space Center.

HEDS is a NASA collaborative enterprise between the Office of Space Flight and office of Life and Microgravity Sciences and Applications. It is one of five Strategic Enterprises that reflect the core, externally oriented missions of NASA.

Alotta Taylor, NASA's chief external liaison, told the group that developing a means of communication among NASA

Headquarters and its field centers was a primary goal of the strategic planning sessions.

"HEDS is not only for people who are going to space, but also for the people on Earth."

—Wisniewski

"We are all doing wonderful things for education and the HEDS enterprise," Taylor said. "We just need a method of communicating those things to one another."

The meeting also provided an opportunity for the group to define goals and objectives for HEDS.

"We need to articulate what we want to accomplish in the HEDS enterprise,"

Taylor said.

Richard Wisniewski, NASA's deputy associate administrator, addressed the group to outline specific goals that he wanted to see achieved by the HEDS enterprise.

These goals included: supporting the NASA Implementation Plan for Education; developing partnerships with the media and universities that capitalize on the integrated value of HEDS products; and developing special programs that meet the needs of minorities.

Wisniewski said that HEDS allows people to dream.

"The human experience goes both ways," he said. "HEDS is not only for people who are going to space, but also for the people on Earth."

Stennis holds town meeting concerning waste cleanup site

NASA's Environmental Office at Stennis Space Center, with assistance by the U.S. Air Force, held two information sessions on October 8 to discuss alternatives for remedying contamination in an area at Stennis where NASA conducted pesticides operations and the Air Force disposed of material contaminated with low levels of Herbicide Orange.

The information sessions were part of NASA's ongoing efforts to answer questions and record comments by Stennis employees or members of the public about the cleanup sites.

The actual Herbicide Orange, stored at the Gulfport Seabee Base in the mid-1970's, was not transported to Stennis Space Center but was incinerated at sea. The material that was buried by the Air Force at Stennis consisted of wooden support racks, metal containers holding soiled clothing, bentonite clay, petroleum-based sludge, metal scrap, and rubber tubing, all of which were potentially contaminated.

According to Ron Magee, NASA environmental officer at Stennis, NASA has completed its evaluation of the cleanup area. The proposed plan and the reports on which it is based are



NASA Environmental Officer Ron Magee (left) speaks with NASA's Bob Delcuze, Dale McCarty and Randy Holland while Susan Santos of the Focus Group looks on during an informational exchange session in the Atrium of Building 1100 on Oct. 8. The information sessions were part of NASA's ongoing efforts to answer questions and record comments by Stennis employees or members of the public about the cleanup sites.

available for review at the Hancock County Library in Bay St. Louis.

For more information or to review the Administrative Record on which the proposed cleanup is based, contact Magee at (228) 688-7384 or by writing to Mr. Ronald G. Magee, NASA Environmental Officer, Code RAOO,

Building 1100, Room 3017, Stennis Space Center, MS 39529-6000. Written comments on the proposed plan will be accepted Oct. 1-30.

After considering all comments, NASA will select the final cleanup strategies for the area and make that information available to the public.



Pictured from left, NASA's Florence Kailiwai-Barnett, director of center operations and Marina Love Benigno, chief financial officer are presented with a Women of NASA poster by Stennis Space Center Director Roy Estess. Both were selected to be featured in the poster. Women of NASA is an initiative of the NASA Federal Women's Program to honor the accomplishments and diversity of women at NASA, past and present. The poster commemorates NASA's 40th Anniversary and to recognize the contributions of notable women from all NASA Centers.

Safety Corner

Information provided by
NASA's Safety Reliability and
Quality Assurance Office

Stress, chemicals can cause noses to bleed

Chemicals can cause nosebleeds. However, it isn't likely that this information will be found on a material safety data sheet.

Chromic acid and chromates are chemicals known to harm nasal tissues. Employees should be informed that working with talc, silica, fiberglass or kaolin may cause nasal irritation. Because nosebleeds are probably not indicated on the data sheets, workers should be aware that chemicals that can cause dry skin, increased blood pressure, blood thinning or pulmonary irritation can also lead to nosebleeds.

Workers exposed to heavy lifting or frequent bending may experience an increase in blood pressure, leading to nosebleeds. It is important that employees remain well hydrated throughout the workday to avoid over-drying the sensitive nasal tissue. Stress can also be a factor. As hormones are released, the blood vessels in the nose fill with blood.

Pinpointing one cause of nosebleeds may be difficult, but investigating and taking steps to resolve the above factors may help those who are prone to nosebleeds have fewer episodes on the job.

QUICK LOOK

■ **Alcohol and Drug Awareness Week** will be observed Oct. 26-30. An exhibit will be on display in front of the cafeteria in Building 1100 throughout the week with information. Additional information is also available concerning alcohol and drug abuse and their related problems from Tim Donohoe at Ext. 3005.

■ **The SSCRA Gun & Archery Club** is offering a Personal Protection and Basic Firearm Safety course Saturday and Sunday November 7 and 8 from 8:30 a.m. to 6 p.m. A team of six NRA certified instructors will provide one-on-one instruction in the safe methods of handling and owning a firearm. Cost per person is \$25 and includes ammunition and course materials. Contact Jack McDermid Ext. 5254 or Mike McKinion Ext. 2352.

■ **Everyone is invited** to the annual Stennis Space Center Recreation Association Halloween Party to be held from 5-7 p.m. Friday, Oct. 30 at the Cypress House.

■ **The Stennis Child Development Center** will be holding its holiday book sale on Dec. 2 and 3 outside the cafeteria in Building 1100. Proceeds will be used for improvements to the child development center.

■ **Remember!** Daylight Savings Time ends on Oct. 25. Don't forget to set your clocks back one hour before you go to bed.

POWERPACK...

(continued from Page 1)

NASA. It will demonstrate technologies needed to develop a commercial reusable launch vehicle that is expected to reduce the cost of launching payloads into space from \$10,000 to \$1,000 per pound.

The powerpack consists of the main power generating and pumping components of the aerospike engine. It includes liquid oxygen and liquid hydrogen turbopumps, a gas generator for the turbopump drive as well as vehicle connect lines and interconnecting flight ducts.

Powerpack tests are critical in the development of the Linear Aerospike Engine because various performance levels can be tested in conjunction with the engine fabrication and design. This individual component testing capability is one of the key benefits of the gas generator power cycle selected for X-33 application.

Full-scale tests of the engine are scheduled to begin at Stennis early next year. Boeing's Rocketdyne Propulsion and Power unit builds the powerpacks and engines in Canoga Park, Calif.

"I commend the Rocketdyne-NASA team for achieving this milestone," said Gene Austin, NASA X-33 Program Manager at Marshall Space Flight Center. "Getting hardware onto the test stands to verify its performance is just another sign of how well the X-33 development is progressing."

Steve Nunez, Stennis' X-33 project manager, added, "Appreciation goes to the combined Stennis Space Center and Rocketdyne test team for putting long hours into successfully completing this first critical test; they've done an outstanding job!"

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center, National Aeronautics and Space Administration, Stennis Space Center, MS. Roy Estess is the center director, Myron Webb is the public affairs officer and Lane Cooksey is the news chief. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 207, Stennis Space Center, MS 39529, or call (228) 688-3583.

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NASA at SSC is on the Internet at
<http://www.ssc.nasa.gov>



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